TEST

TEST 2 BRANCH

MD-11-DOB-A

EP-DOB-A-DL-A

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FICHE 1 OF 1

NOV 1976

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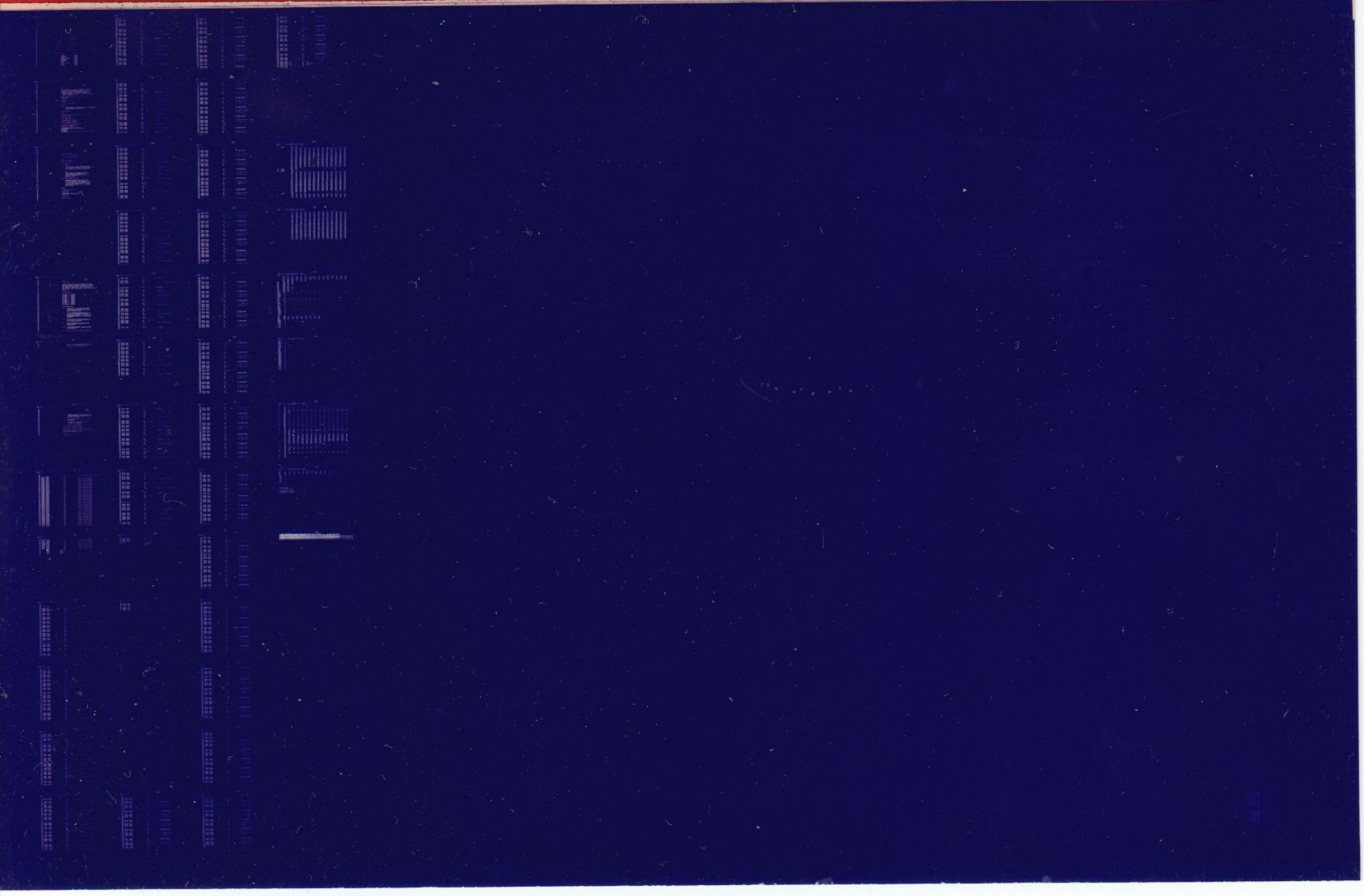
MADE IN USA



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IDENTIFICATION

PRODUCT CODE: MAINDEC-11-DDAA TO DDLA-D

PRODUCT NAME: FIRST LEVEL 1-12

DATE CREATED: 17 MARCH 1970

MAINTAINER: DIAGNOSTIC GROUP

AUTHOR: JOHN HITTELL

THIS GROUP OF TESTS CONSIST OF:

PROCESSOR TEST			MAINDEC
TEST	1	BRANCH	11-DDAA
	2	CON BRANCH	11-DDBA
	3	UNARY	11-DDCA
	4	UNARY AND BINARYS	11-DDDA
	5	ROTATE/SHIFT	11-DDEA
	6	COMPARE	11-DDFA
	7	COMPARE NOT	11-DDGA
	8	MOVE	11-DDHA
	9	BIS,BIC AND BIT	11-DDIA
	10	ADD	11-DDJA
	11	SUBTRACT	11-DDKA
	12	JMP	11-DDLA

1. ABSTRACT

THIS IS A GROUP OF 12 TESTS THAT INCREMENTALLY TEST AND ISOLATE SIMPLE MALFUNCTIONS OF THE PDP 11. THE TESTS SHOULD BE RUN IN THE INDICATED NUMERICAL SEQUENCE. THE SEQUENCE IS 1. BRANCH 2. CONDITIONAL BRANCH 3. UNARY 4. UNARY AND BINARYS 5. ROTATE/SHIFT 6. COMPARE (EQUALITY) 7. COMPARE (NON EQUALITY) 8. MOVE 9. BIT SET, CLEAR AND TEST 10. ADD 11. SUBTRACT 12. JUMP

THERE IS A SECOND GROUP OF TESTS FOR MORE COMPLEX MALFUNCTIONS.

2. REQUIREMENTS

2.1 EQUIPMENT

PDP-11/20 STANDARD COMPUTER

2.2 STORAGE

2.2.1 PROGRAM STORAGE - THE PROGRAMS USE ALL OF A 4KW MEMORY WITH THE EXCEPTION OF 17500 TO 17776 (WHICH IS RESERVED FOR THE BOOT AND ABSOLUTE LOADER).

3. LOADING PROCEDURE

3.1 METHOD

PROCEDURE FOR NORMAL ABSOLUTE TAPES SHOULD BE FOLLOWED.

4. STARTING PROCEDURE

4.1 CONTROL SWITCH SETTING

ALL PROGRAMS START AT ADDRESS 200.

4.2 STARTING ADDRESS OR ADDRESSES

(A) 200 = START AND RESTART ADDRESS

4.3 PROGRAM AND/OR OPERATOR ACTION

LOAD PROGRAM INTO MEMORY. (BOTTOM 4K)
SET SWITCH REGISTER TO STARTING ADDRESS. (200)
LOAD ADDRESS.
PRESS START.
THE PROGRAM WILL LOOP, AND RING A BELL AFTER A FIXED NUMBER OF ITERATIONS.

5. OPERATING PROCEDURE

5.1 OPERATIONAL SWITCH SETTINGS

5.1.1 NO SWITCHES ARE USED

5.1.3

5.2 SUBROUTINE ABSTRACTS

5.2.1 BEGIN SA 200

5.2.2 SCOPE

IS A "NOP" THAT IS PLACED BETWEEN EACH SUBTEST
IN THE INSTRUCTION SECTION. IF A SCOPE LOOP IS NEEDED,
INSERT A BRANCH TO THE PREVIOUS SCOPE LOCATION
AT THE CURRENT SCOPE LOCATION (NOTE NOP=240)

5.2.3 HLT

INDICATES THE UNIQUE ADDRESS THAT TAGS THE
FAILING SUBTEST. THE INCORRECT DATA AT THE
TIME OF THE FAILURE MAY OR MAY NOT BE
DISPLAYED IN REGISTER ZERO, WHICH IS THE DATA
REGISTER ON A HALT.

5.3 PROGRAM AND/OR OPERATOR ACTION

5.3 1 LOADING AND STARTING AT 200 STARTS THE TEST. IF
AN ERROR IS DETECTED, THERE WILL BE A HALT.
WHEN A HALT OCCURS AND IT IS NECESSARY TO SCOPE ON
IT, PLACE INSERT A BRANCH INSTRUCTION IN THE
SCOPE LOCATION FOLLOWING THE HALT. THE BRANCH
INSTRUCTION SHOULD BRANCH YOU TO THE PREVIOUS
SCOPE LOCATION.

6. ERRORS

6.1 ALL ERRORS WILL CAUSE A HALT.

6.2 ERROR RECOVERY

ON TRAP ERRORS - RESTART AT 200.
DEPRESS CONTINUE TO CONTINUE TEST

7. RESTRICTIONS

7.1 STARTING RESTRICTION

NONE

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                                        7.2     OPERATIONAL RESTRICTION
                                                NONE
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8. MISCELLANEOUS

IF A HALT OCCURES IN THE TRAP OR INTERRUPT VECTOR AREA, REGISTER SIX SHOULD BE EXAMINED TO DETERMINE ITS CONTENTS, THEN USE REGISTER SIX CONTENTS AS AN ADDRESS TO DETERMINE THE LOCATION THE PROGRAM WAS AT, WHEN THE INTERRUPT OR TRAP OCCURRED. (MEMORY AS SPECIFIED BY R6 CONTAINS THE PC OF THE INSTRUCTION FOLLOWING THE INSTRUCTION WHERE THE TRAP OCCURED)

8.1 EXECUTION TIME

TIME BETWEEN BELLS

FOR TAPE 1 5   MINUTES
FOR TAPE 2 2.5 MINUTES
FOR TAPE 3 3   MINUTES
FOR TAPE 4 6   MINUTES
FOR TAPE 5 5   MINUTES
FOR TAPE 6 6   MINUTES
FOR TAPE 7 5   MINUTES
FOR TAPE 8 6   MINUTES
FOR TAPE 9 3   MINUTES
FOR TAPE 10 4   MINUTES
FOR TAPE 11 2   MINUTES
FOR TAPE 12 4   MINUTES

9. PROGRAM DESCRIPTION

TEST 1 THIS IS A TEST OF THE UNCONDITIONAL BRANCH INSTRUCTION, IT PROVES THAT A LONG PROGRAM CAN BE LOADED AND THE INSTRUCTIONS CAN BE EXECUTED THROUGHOUT MEMORY.

TEST 2 THIS IS A CONDITIONAL BRANCH TEST USING ALL OF THE CONDITIONAL BRANCH INSTRUCTIONS. IT TESTS THAT ALL COMBINATIONS OF CONDITION CODES ARE RESPONDED TO CORRECTLY. (THE CONDITION CODES ARE MANIPULATED WITH THE MICRO-PROGRAM OPERATIONS.)

TEST 3 THIS IS A TEST OF THE UNARY INSTRUCTIONS AND THEIR EFFECTS UPON THE CONDITION CODES ONLY. MOSTLY REGISTER OPERATIONS.

TEST 4 THIS IS A COMBINED USE OF UNARY AND BINARY INSTRUCTIONS TESTING THE RESULTS AND THE CONDITION CODES.

TEST 5 THIS TEST ROTATE AND SHIFT INSTRUCTION, BOTH THE REGISTERS AND MEMORY LOCATIONS, WORD AND BYTE, ARE TESTED.

TEST 6 THIS IS A TEST OF THE COMPARE INSTRUCTIONS FOR

```
                                ;
                                ; EQUALITY. ALL CONDITIONAL BRANCHES THAT WILL
                                ; BRANCH ON ANY FORM OF EQUALITY ARE ALSO TESTED.
                                ; BOTH WORD AND BYTE OPERATIONS ARE USED.
```

(9 CONT'D)

TEST 7 COMPARE NOT. THIS IS A TEST OF THE COMPARE INSTRUCTIONS WHERE NO VALUES ARE EQUAL. HERE BRANCHES FOR NOT EQUAL, GREATER THAN AND LESS THAN, ETC., ARE TESTED.

TEST 8 CHECKS THE MOVE INSTRUCTION BOTH TO MEMORY AND REGISTERS.

TEST 9 CHECK THE BIS, BIC AND BIT INSTRUCTION BOTH TO MEMORY AND TO REGISTERS.

TEST 10 TESTS THE ADD INSTRUCTION.

TEST 11 TESTS THE SUBTRACT INSTRUCTION.

TEST 12 TEST OF THE JUMP INSTRUCTION IN MOST MODES.

NOTE THAT STACK OPERATION AND INSTRUCTIONS THAT USE THEM ARE NOT TESTED IN THIS GROUP OF TEST.

10. LISTING

11. FLOW CHART(S)

```
                                                %
                                ;TEST 2--PDP11 CONDITIONAL BRANCH, SIGN ARITHMETIC AND NON SIGN ARITHMETIC
                    000000              .=0
000000  000002              .+2
000002  000000              HALT                ;TRAPPED TO PREVIOUS ADDRESS
000004  000006              .+2
000006  000000              HALT                ;TRAPPED TO PREVIOUS ADDRESS
000010  000012              .+2
000012  000000              HALT                ;TRAPPED TO PREVIOUS ADDRESS
000014  000016              .+2
000016  000000              HALT                ;TRAPPED TO PREVIOUS ADDRESS
000020  000022              .+2
000022  000000              HALT                ;TRAPPED TO PREVIOUS ADDRESS
000024  000026              .+2
000026  000000              HALT                ;TRAPPED TO PREVIOUS ADDRESS
000030  000032              .+2
000032  000000              HALT                ;TRAPPED TO PREVIOUS ADDRESS
000034  000036              .+2
000036  000000              HALT                ;TRAPPED TO PREVIOUS ADDRESS
000040  000042              .+2
000042  000000              HALT                ;TRAPPED TO PREVIOUS ADDRESS
000044  000046              .+2
000046  000000              HALT                ;TRAPPED TO PREVIOUS ADDRESS
000050  000052              .+2
000052  000000              HALT                ;TRAPPED TO PREVIOUS ADDRESS
000054  000056              .+2
000056  000000              HALT                ;TRAPPED TO PREVIOUS ADDRESS
000060  000062              .+2
000062  000000              HALT                ;TRAPPED TO PREVIOUS ADDRESS
000064  000066              .+2
000066  000000              HALT                ;TRAPPED TO PREVIOUS ADDRESS
000070  000072              .+2
000072  000000              HALT                ;TRAPPED TO PREVIOUS ADDRESS
000074  000076              .+2
000076  000000              HALT                ;TRAPPED TO PREVIOUS ADDRESS
000100  000102              .+2
000102  000000              HALT                ;TRAPPED TO PREVIOUS ADDRESS
000104  000106              .+2
000106  000000              HALT                ;TRAPPED TO PREVIOUS ADDRESS
000110  000112              .+2
000112  000000              HALT                ;TRAPPED TO PREVIOUS ADDRESS
000114  000116              .+2
000116  000000              HALT                ;TRAPPED TO PREVIOUS ADDRESS
000120  000122              .+2
000122  000000              HALT                ;TRAPPED TO PREVIOUS ADDRESS
000124  000126              .+2
000126  000000              HALT                ;TRAPPED TO PREVIOUS ADDRESS
000130  000132              .+2
000132  000000              HALT                ;TRAPPED TO PREVIOUS ADDRESS
000134  000136              .+2
000136  000000              HALT                ;TRAPPED TO PREVIOUS ADDRESS
000140  000142              .+2
000142  000000              HALT                ;TRAPPED TO PREVIOUS ADDRESS
000144  000146              .+2
000146  000000              HALT                ;TRAPPED TO PREVIOUS ADDRESS
000150  000152              .+2
```

J01


```
   308  000152  000000                          HALT                ;TRAPPED TO PREVIOUS ADDRESS
   309  000154  000156                          .+2
   310  000156  000000                          HALT                ;TRAPPED TO PREVIOUS ADDRESS
   311  000160  000162                          .+2
   312  000162  000000                          HALT                ;TRAPPED TO PREVIOUS ADDRESS
   313  000164  000166                          .+2
   314  000166  000000                          HALT                ;TRAPPED TO PREVIOUS ADDRESS
   315  000170  000172                          .+2
   316  000172  000000                          HALT                ;TRAPPED TO PREVIOUS ADDRESS
   317  000174  000176                          .+2
   318  000176  000000                          HALT                ;TRAPPED TO PREVIOUS ADDRESS
   319          000240                  NOP=000240
   320          000000                  HLT=0
   321          000240                  SCOPE=NOP
   322          177570                  SR=177570
   323          000200                  .=200                       ;START OF PROGRAM
   324
```

```
                                ;N=0, Z=0, V=0, C=0
000200  000257                          CCC             ;CLEAR CONDITION CODES
000202  103401                          BCS     .+4
000204  000401                          BR      .+4
000206  000000                          HLT             ;C WAS NOT CLEAR
000210  000240                          SCOPE
000212  103001                          BCC     .+4
000214  000000                          HLT             ;C SHOULD NOT HAVE BRANCHED
000216  000240                          SCOPE
000220  102401                          BVS     .+4
000222  000401                          BR      .+4
000224  000000                          HLT             ;V WAS NOT CLEAR
000226  000240                          SCOPE
000230  102001                          BVC     .+4
000232  000000                          HLT             ;V SHOULD NOT HAVE BRANCHED
000234  000240                          SCOPE
000236  001401                          BEQ     .+4
000240  000401                          BR      .+4
000242  000000                          HLT             ;Z WAS NOT CLEAR
000244  000240                          SCOPE
000246  001001                          BNE     .+4
000250  000000                          HLT             ;Z SHOULD NOT HAVE BRANCHED
000252  000240                          SCOPE
000254  100401                          BMI     .+4
000256  000401                          BR      .+4
000260  000000                          HLT             ;N WAS NOT CLEAR
000262  000240                          SCOPE
000264  100001                          BPL     .+4
000266  000000                          HLT             ;N SHOULD NOT HAVE BRANCHED
000270  000240                          SCOPE

                                ;N=0, Z=0, V=0, C=1
000272  000261                          SEC             ;SET "C"
000274  103401                          BCS     .+4
000276  000000                          HLT             ;C WAS NOT SET
000300  000240                          SCOPE
000302  103001                          BCC     .+4
000304  000401                          BR      .+4
000306  000000                          HLT             ;C SHOULD NOT HAVE BRANCHED
000310  000240                          SCOPE

000312  102401                          BVS     .+4
000314  000401                          BR      .+4
000316  000000                          HLT             ;V WAS NOT CLEAR
```

```
                                                SCOPE

                                                BVC     .+4
                                                HLT                     ;V SHOULD NOT HAVE BRANCHED
                                                SCOPE

                                                BEQ     .+4
                                                BR      .+4
                                                HLT                     ;Z WAS NOT CLEAR
                                                SCOPE

                                                BNE     .+4
                                                HLT                     ;Z SHOULD NOT HAVE BRANCHED
                                                SCOPE

                                                BMI     .+4
                                                BR      .+4
                                                HLT                     ;N WAS NOT CLEAR
                                                SCOPE

                                                BPL     .+4
                                                HLT                     ;N SHOULD NOT HAVE BRANCHED
                                                SCOPE

                                        ;N=0, Z=0, V=1, C=0
                                                CLC                     ;CLEAR "C"
                                                SEV                     ;SET "V"

                                                BCS     .+4
                                                BR      .+4
                                                HLT                     ;C WAS NOT CLEAR
                                                SCOPE

                                                BCC     .+4
                                                HLT                     ;C SHOULD NOT HAVE BRANCHED
                                                SCOPE

                                                BVS     .+4
                                                HLT                     ;V WAS NOT SET
                                                SCOPE

                                                BVC     .+4
                                                BR      .+4
                                                HLT                     ;V SHOULD NOT HAVE BRANCHED
                                                SCOPE


                                                BEQ     .+4
                                                BR      .+4
                                                HLT                     ;Z WAS NOT CLEAR
                                                SCOPE

                                                BNE     .+4
                                                HLT                     ;Z SHOULD NOT HAVE BRANCHED
                                                SCOPE
```

```
437  000442  100401                          BMI     .+4
438  000444  000401                          BR      .+4
439  000446  000000                          HLT                     ;N WAS NOT CLEAR
440  000450  000240                          SCOPE
441
442  000452  100001                          BPL     .+4
443  000454  000000                          HLT                     ;N SHOULD NOT HAVE BRANCHED
444  000456  000240                          SCOPE
445
446                                  ;N=0, Z=0, V=1, C=1
447  000460  000263                          +SEV!SEC                ;SET "V" AND "C"
448
449  000462  103401                          BCS     .+4
450  000464  000000                          HLT                     ;C WAS NOT SET
451  000466  000240                          SCOPE
452
453  000470  103001                          BCC     .+4
454  000472  000401                          BR      .+4
455  000474  000000                          HLT                     ;C SHOULD NOT HAVE BRANCHED
456  000476  000240                          SCOPE
457
458
459  000500  102401                          BVS     .+4
460  000502  000000                          HLT                     ;V WAS NOT SET
461  000504  000240                          SCOPE
462
463  000506  102001                          BVC     .+4
464  000510  000401                          BR      .+4
465  000512  000000                          HLT                     ;V SHOULD NOT HAVE BRANCHED
466  000514  000240                          SCOPE
467
468
469  000516  001401                          BEQ     .+4
470  000520  000401                          BR      .+4
471  000522  000000                          HLT                     ;Z WAS NOT CLEAR
472  000524  000240                          SCOPE
473
474  000526  001001                          BNE     .+4
475  000530  000000                          HLT                     ;Z SHOULD NOT HAVE BRANCHED
476  000532  000240                          SCOPE
477
478  000534  100401                          BMI     .+4
479  000536  000401                          BR      .+4
480  000540  000000                          HLT                     ;N WAS NOT CLEAR
481  000542  000240                          SCOPE
482
483  000544  100001                          BPL     .+4
484  000546  000000                          HLT                     ;N SHOULD NOT HAVE BRANCHED
485  000550  000240                          SCOPE
486
487                                  ;N=0, Z=1, V=0, C=0
488  000552  000257                          CCC                     ;CLEAR CONDITION CODES
489  000554  000264                          SEZ                     ;SET Z
490
491  000556  103401                          BCS     .+4
492  000560  000401                          BR      .+4
```

```
000562  000000                  HLT                     ;C WAS NOT CLEAR
000564  000240                  SCOPE

000566  103001                  BCC     .+4
000570  000000                  HLT                     ;C SHOULD NOT HAVE BRANCHED
000572  000240                  SCOPE

000574  102401                  BVS     .+4
000576  000401                  BR      .+4
000600  000000                  HLT                     ;V WAS NOT CLEAR
000602  000240                  SCOPE

000604  102001                  BVC     .+4
000606  000000                  HLT                     ;V SHOULD NOT HAVE BRANCHED
000610  000240                  SCOPE

000612  001401                  BEQ     .+4
000614  000000                  HLT                     ;Z WAS NOT SET
000616  000240                  SCOPE

000620  001001                  BNE     .+4
000622  000401                  BPL     .+4
000624  000000                  HLT                     ;Z SHOULD NOT HAVE BRANCHED
000626  000240                  SCOPE


000630  100401                  BMI     .+4
000632  000401                  BR      .+4
000634  000000                  HLT                     ;N WAS NOT CLEAR
000636  000240                  SCOPE

000640  100001                  BPL     .+4
000642  000000                  HLT                     ;N SHOULD NOT HAVE BRANCHED
000644  000240                  SCOPE

                        ;N=0, Z=1, V=0, C=1
000646  000257                  CCC                     ;CLEAR
000650  000265                  +SEC!SEZ                ;SET "C" AND Z

000652  103401                  BCS     .+4
000654  000000                  HLT                     ;C WAS NOT SET
000656  000240                  SCOPE

000660  103001                  BCC     .+4
000662  000401                  BR      .+4
000664  000000                  HLT                     ;C SHOULD NOT HAVE BRANCHED
000666  000240                  SCOPE


000670  102401                  BVS     .+4
000672  000401                  BR      .+4
000674  000000                  HLT                     ;V WAS NOT CLEAR
000676  000240                  SCOPE

000700  102001                  BVC     .+4
000702  000000                  HLT                     ;V SHOULD NOT HAVE BRANCHED
```

```
000704  000240                          SCOPE

000706  001401                          BEQ     .+4
000710  000000                          HLT                     ;Z WAS NOT SET
000712  000240                          SCOPE

000714  001001                          BNE     .+4
000716  000401                          BR      .+4
000720  000000                          HLT                     ;Z SHOULD NOT HAVE BRANCHED
000722  000240                          SCOPE

000724  100401                          BMI     .+4
000726  000401                          BR      .+4
000730  000000                          HLT                     ;N WAS NOT CLEAR
000732  000240                          SCOPE

000734  100001                          BPL     .+4
000736  000000                          HLT                     ;N SHOULD NOT HAVE BRANCHED
000740  000240                          SCOPE

                                ;N=0, Z=1, V=1, C=0
000742  000257                          CCC                     ;CLEAR CODES
000744  000266                          +SEZ!SEV                ;SET Z AND V

000746  103401                          BCS     .+4
000750  000401                          BR      .+4
000752  000000                          HLT                     ;C WAS NOT CLEAR
000754  000240                          SCOPE

000756  103001                          BCC     .+4
000760  000000                          HLT                     ;C SHOULD NOT HAVE BRANCHED
000762  000240                          SCOPE

000764  102401                          BVS     .+4
000766  000000                          HLT                     ;V WAS NOT SET
000770  000240                          SCOPE

000772  102001                          BVC     .+4
000774  000401                          BR      .+4
000776  000000                          HLT                     ;V SHOULD NOT HAVE BRANCHED
001000  000240                          SCOPE

001002  001401                          BEQ     .+4
001004  000000                          HLT                     ;Z WAS NOT SET
001006  000240                          SCOPE

001010  001001                          BNE     .+4
001012  000401                          BR      .+4
001014  000000                          HLT                     ;Z SHOULD NOT HAVE BRANCHED
001016  000240                          SCOPE
```

```
                                                BMI     .+4
                                                BR      .+4
                                                HLT                     ;N WAS NOT CLEAR
                                                SCOPE

                                                BPL     .+4
                                                HLT                     ;N SHOULD NOT HAVE BRANCHED
                                                SCOPE
                                        ;N=0, Z=1, V=1, C=1
                                                CCC                     ;CLEAR CODES
                                                +SEZ!SEV!SEC            ;SET Z, V AND C

                                                BCS     .+4
                                                HLT                     ;C WAS NOT SET
                                                SCOPE

                                                BCC     .+4
                                                BR      .+4
                                                HLT                     ;C SHOULD NOT HAVE BRANCHED
                                                SCOPE


                                                BVS     .+4
                                                HLT                     ;V WAS NOT SET
                                                SCOPE

                                                BVC     .+4
                                                BR      .+4
                                                HLT                     ;V SHOULD NOT HAVE BRANCHED
                                                SCOPE


                                                BEQ     .+4
                                                HLT                     ;Z WAS NOT SET
                                                SCOPE

                                                BNE     .+4
                                                BR      .+4
                                                HLT                     ;Z SHOULD NOT HAVE BRANCHED
                                                SCOPE


                                                BMI     .+4
                                                BR      .+4
                                                HLT                     ;N WAS NOT CLEAR
                                                SCOPE

                                                BPL     .+4
                                                HLT                     ;N SHOULD NOT HAVE BRANCHED
                                                SCOPE

                                        ;N=1, Z=0, V=0, C=0
                                                CCC                     ;CLEAR CODES
                                                SEN                     ;SET N
```

```
  658  001136  103401                    BCS     .+4
  659  001140  000401                    BR      .+4
  660  001142  000000                    HLT                     ;C WAS NOT CLEAR
  661  001144  000240                    SCOPE
  662
  663  001146  103001                    BCC     .+4
  664  001150  000000                    HLT                     ;C SHOULD NOT HAVE BRANCHED
  665  001152  000240                    SCOPE
  666
  667  001154  102401                    BVS     .+4
  668  001156  000401                    BR      .+4
  669  001160  000000                    HLT                     ;V WAS NOT CLEAR
  670  001162  000240                    SCOPE
  671
  672  001164  102001                    BVC     .+4
  673  001166  000000                    HLT                     ;V SHOULD NOT HAVE BRANCHED
  674  001170  000240                    SCOPE
  675
  676  001172  001401                    BEQ     .+4
  677  001174  000401                    BR      .+4
  678  001176  000000                    HLT                     ;Z WAS NOT CLEAR
  679  001200  000240                    SCOPE
  680
  681  001202  001001                    BNE     .+4
  682  001204  000000                    HLT                     ;Z SHOULD NOT HAVE BRANCHED
  683  001206  000240                    SCOPE
  684
  685  001210  100401                    BMI     .+4
  686  001212  000000                    HLT                     ;N WAS NOT SET
  687  001214  000240                    SCOPE
  688
  689  001216  100001                    BPL     .+4
  690  001220  000401                    BR      .+4
  691  001222  000000                    HLT                     ;N SHOULD NOT HAVE BRANCHED
  692  001224  000240                    SCOPE
  693
  694
  695                          ;N=1, Z=0, V=0, C=1
  696  001226  000257                    CCC
  697  001230  000271                    +SEN!SEC
  698
  699  001232  103401                    BCS     .+4
  700  001234  000000                    HLT                     ;C WAS NOT SET
  701  001236  000240                    SCOPE
  702
  703  001240  103001                    BCC     .+4
  704  001242  000401                    BR      .+4
  705  001244  000000                    HLT                     ;C SHOULD NOT HAVE BRANCHED
  706  001246  000240                    SCOPE
  707
  708
  709  001250  102401                    BVS     .+4
  710  001252  000401                    BR      .+4
  711  001254  000000                    HLT                     ;V WAS NOT CLEAR
  712  001256  000240                    SCOPE
  713
```

```
   714  001260  102001                          BVC     .+4
   715  001262  000000                          HLT                     ;V SHOULD NOT HAVE BRANCHED
   716  001264  000240                          SCOPE
   717
   718  001266  001401                          BEQ     .+4
   719  001270  000401                          BR      .+4
   720  001272  000000                          HLT                     ;Z WAS NOT CLEAR
   721  001274  000240                          SCOPE
   722
   723  001276  001001                          BNE     .+4
   724  001300  000000                          HLT                     ;Z SHOULD NOT HAVE BRANCHED
   725  001302  000240                          SCOPE
   726
   727  001304  100401                          BMI     .+4
   728  001306  000000                          HLT                     ;N WAS NOT SET
   729  001310  000240                          SCOPE
   730
   731  001312  100001                          BPL     .+4
   732  001314  000401                          BR      .+4
   733  001316  000000                          HLT                     ;N SHOULD NOT HAVE BRANCHED
   734  001320  000240                          SCOPE
   735
   736
   737                          ;N=1, Z=0, V=1, C=0
   738  001322  000257                          CCC
   739  001324  000272                          +SEV!SEN
   740
   741  001326  103401                          BCS     .+4
   742  001330  000401                          BR      .+4
   743  001332  000000                          HLT                     ;C WAS NOT CLEAR
   744  001334  000240                          SCOPE
   745
   746  001336  103001                          BCC     .+4
   747  001340  000000                          HLT                     ;C SHOULD NOT HAVE BRANCHED
   748  001342  000240                          SCOPE
   749
   750  001344  102401                          BVS     .+4
   751  001346  000000                          HLT                     ;V WAS NOT SET
   752  001350  000240                          SCOPE
   753
   754  001352  102001                          BVC     .+4
   755  001354  000401                          BR      .+4
   756  001356  000000                          HLT                     ;V SHOULD NOT HAVE BRANCHED
   757  001360  000240                          SCOPE
   758
   759
   760  001362  001401                          BEQ     .+4
   761  001364  000401                          BR      .+4
   762  001366  000000                          HLT                     ;Z WAS NOT CLEAR
   763  001370  000240                          SCOPE
   764
   765  001372  001001                          BNE     .+4
   766  001374  000000                          HLT                     ;Z SHOULD NOT HAVE BRANCHED
   767  001376  000240                          SCOPE
   768
   769  001400  100401                          BMI     .+4
```

```
001402  000000                  HLT                     ;N WAS NOT SET
001404  000240                  SCOPE
001406  100001                  BPL     .+4
001410  000401                  BR      .+4
001412  000000                  HLT                     ;N SHOULD NOT HAVE BRANCHED
001414  000240                  SCOPE
                        ;N=1, Z=0, V=1, C=1
001416  000277                  SCC                     ;SET CODES
001420  000244                  CLZ                     ;CLEAR Z
001422  103401                  BCS     .+4
001424  000000                  HLT                     ;C WAS NOT SET
001426  000240                  SCOPE
001430  103001                  BCC     .+4
001432  000401                  BR      .+4
001434  000000                  HLT                     ;C SHOULD NOT HAVE BRANCHED
001436  000240                  SCOPE
001440  102401                  BVS     .+4
001442  000000                  HLT                     ;V WAS NOT SET
001444  000240                  SCOPE
001446  102001                  BVC     .+4
001450  000401                  BR      .+4
001452  000000                  HLT                     ;V SHOULD NOT HAVE BRANCHED
001454  000240                  SCOPE
001456  001401                  BEQ     .+4
001460  000401                  BR      .+4
001462  000000                  HLT                     ;Z WAS NOT CLEAR
001464  000240                  SCOPE
001466  001001                  BNE     .+4
001470  000000                  HLT                     ;Z SHOULD NOT HAVE BRANCHED
001472  000240                  SCOPE
001474  100401                  BMI     .+4
001476  000000                  HLT                     ;N WAS NOT SET
001500  000240                  SCOPE
001502  100001                  BPL     .+4
001504  000401                  BR      .+4
001506  000000                  HLT                     ;N SHOULD NOT HAVE BRANCHED
001510  000240                  SCOPE
                        ;N=1, Z=1, V=0, C=0
001512  000277                  SCC                     ;SET CODES
001514  000243                  +CLV!CLC                        ;CLEAR V AND C
```

```
826  001516  103401                  BCS     .+4
827  001520  000401                  BR      .+4
828  001522  000000                  HLT                     ;C WAS NOT CLEAR
829  001524  000240                  SCOPE
830
831  001526  103001                  BCC     .+4
832  001530  000000                  HLT                     ;C SHOULD NOT HAVE BRANCHED
833  001532  000240                  SCOPE
834
835  001534  102401                  BVS     .+4
836  001536  000401                  BR      .+4
837  001540  000000                  HLT                     ;V WAS NOT CLEAR
838  001542  000240                  SCOPE
839
840  001544  102001                  BVC     .+4
841  001546  000000                  HLT                     ;V SHOULD NOT HAVE BRANCHED
842  001550  000240                  SCOPE
843
844  001552  001401                  BEQ     .+4
845  001554  000000                  HLT                     ;Z WAS NOT SET
846  001556  000240                  SCOPE
847
848  001560  001001                  BNE     .+4
849  001562  000401                  BR      .+4
850  001564  000000                  HLT                     ;Z SHOULD NOT HAVE BRANCHED
851  001566  000240                  SCOPE
852
853
854  001570  100401                  BMI     .+4
855  001572  000000                  HLT                     ;N WAS NOT SET
856  001574  000240                  SCOPE
857
858  001576  100001                  BPL     .+4
859  001600  000401                  BR      .+4
860  001602  000000                  HLT                     ;N SHOULD NOT HAVE BRANCHED
861  001604  000240                  SCOPE
862
```

```
                                        ;N=1, Z=1, V=0, C=1
001606  000277                                SCC             ;SET CODES
001610  000242                                CLV             ;CLEAR V

001612  103401                                BCS     .+4
001614  000000                                HLT             ;C WAS NOT SET
001616  000240                                SCOPE

001620  103001                                BCC     .+4
001622  000401                                BR      .+4
001624  000000                                HLT             ;C SHOULD NOT HAVE BRANCHED
001626  000240                                SCOPE

001630  102401                                BVS     .+4
001632  000401                                BR      .+4
001634  000000                                HLT             ;V WAS NOT CLEAR
001636  000240                                SCOPE

001640  102001                                BVC     .+4
001642  000000                                HLT             ;V SHOULD NOT HAVE BRANCHED
001644  000240                                SCOPE

001646  001401                                BEQ     .+4
001650  000000                                HLT             ;Z WAS NOT SET
001652  000240                                SCOPE

001654  001001                                BNE     .+4
001656  000401                                BR      .+4
001660  000000                                HLT             ;Z SHOULD NOT HAVE BRANCHED
001662  000240                                SCOPE

001664  100401                                BMI     .+4
001666  000000                                HLT             ;N WAS NOT SET
001670  000240                                SCOPE

001672  100001                                BPL     .+4
001674  000401                                BR      .+4
001676  000000                                HLT             ;N SHOULD NOT HAVE BRANCHED
001700  000240                                SCOPE


                                        ;N=1, Z=1, V=1, C=0
001702  000277                                SCC             ;SET CODES
001704  000241                                CLC             ;CLEAR "C"

001706  103401                                BCS     .+4
001710  000401                                BR      .+4
001712  000000                                HLT             ;C WAS NOT CLEAR
001714  000240                                SCOPE

001716  103001                                BCC     .+4
001720  000000                                HLT             ;C SHOULD NOT HAVE BRANCHED
001722  000240                                SCOPE
```

```
                                                BVS     .+4
001724  002401                                  HLT                     ;V WAS NOT SET
001726  000000                                  SCOPE
001730  000240
                                                BVC     .+4
001732  102001                                  BR      .+4
001734  000401                                  HLT                     ;V SHOULD NOT HAVE BRANCHED
001736  000000                                  SCOPE
001740  000240


001742  001401                                  BEQ     .+4
001744  000000                                  HLT                     ;Z WAS NOT SET
001746  000240                                  SCOPE

001750  001001                                  BNE     .+4
001752  000401                                  BR      .+4
001754  000000                                  HLT                     ;Z SHOULD NOT HAVE BRANCHED
001756  000240                                  SCOPE


001760  100401                                  BMI     .+4
001762  000000                                  HLT                     ;N WAS NOT SET
001764  000240                                  SCOPE

001766  100001                                  BPL     .+4
001770  000401                                  BR      .+4
001772  000000                                  HLT                     ;N SHOULD NOT HAVE BRANCHED
001774  000240                                  SCOPE


                                        ;N=1, Z=1, V=1, C=1
001776  000277                                  SCC

002000  103401                                  BCS     .+4
002002  000000                                  HLT                     ;C WAS NOT SET
002004  000240                                  SCOPE

002006  103001                                  BCC     .+4
002010  000401                                  BR      .+4
002012  000000                                  HLT                     ;C SHOULD NOT HAVE BRANCHED
002014  000240                                  SCOPE


002016  102401                                  BVS     .+4
002020  000000                                  HLT                     ;V WAS NOT SET
002022  000240                                  SCOPE

002024  102001                                  BVC     .+4
002026  000401                                  BR      .+4
002030  000000                                  HLT                     ;V SHOULD NOT HAVE BRANCHED
002032  000240                                  SCOPE


002034  001401                                  BEQ     .+4
002036  000000                                  HLT                     ;Z WAS NOT SET
002040  000240                                  SCOPE
```

```
  975
  976  002042  001001                        BNE     .+4
  977  002044  000401                        BR      .+4
  978  002046  000000                        HLT                     ;Z SHOULD NOT HAVE BRANCHED
  979  002050  000240                        SCOPE
  980
  981  002052                        NEXT:
```

```
  982
  983  002052  100401                    BMI     .+4
  984  002054  000000                    HLT                     ;N WAS NOT SET
  985  002056  000240                    SCOPE
  986
  987  002060  100001                    BPL     .+4
  988  002062  000401                    BR      .+4
  989  002064  000000                    HLT                     ;N SHOULD NOT HAVE BRANCHED
  990  002066  000240                    SCOPE
  991
```

```
   992                                          ;FOR CASE 0 AND 12
   993                                          ,FOR CASE 1 AND 13
   994                                          ;FOR CASE 2 AND 10
   995                                          ;FOR CASE 3 AND 11
   996                                          ;FOR CASE 4
```

```
   997                                          ;FOR CASE 6 AND 14
   99A                                          ;FOR CASE 7 AND 15
   999                                          ;FOR CASE 16
  1000                                          ;CASE 17
```

```
 1031
 1002                                   ;START OF TEST
 1003  002070  000240                          SCOPE
 1004  002072  000257                          CCC                     ;0
 1005
 1006  002074  001001                          BNE     .+4             ;BNE SHOULD BRANCH
 1007  002076  000000                          HLT                     ;BNE BRANCH FAILED
 1008  002100  000240                          SCOPE
 1009
 1010  002102  001401                          BEQ     .+4             ;BEQ SHOULD NOT BRANCH
 1011  002104  000401                          BR      .+4
 1012  002106  000000                          HLT                     ;BEQ BRANCH FAILED
 1013  002110  000240                          SCOPE
 1014
 1015
 1016  002112  002001                          BGE     .+4             ;BGE SHOULD BRANCH
 1017  002114  000000                          HLT                     ;BGE BRANCH FAILED
 1018  002116  000240                          SCOPE
 1019
 1020  002120  002401                          BLT     .+4             ;BLT SHOULD NOT BRANCH
 1021  002122  000401                          BR      .+4
 1022  002124  000000                          HLT                     ;BLT BRANCH FAILED
 1023  002126  000240                          SCOPE
 1024
 1025
 1026  002130  003001                          BGT     .+4             ;BGT SHOULD BRANCH
 1027  002132  000000                          HLT                     ;BGT BRANCH FAILED
 1028  002134  000240                          SCOPE
 1029
 1030  002136  003401                          BLE     .+4             ;BLE SHOULD NOT BRANCH
 1031  002140  000401                          BR      .+4
 1032  002142  000000                          HLT                     ;BLE BRANCH FAILED
 1033  002144  000240                          SCOPE
 1034
 1035
 1036  002146  103001                          BHIS    .+4             ;BHIS SHOULD BRANCH
 1037  002150  000000                          HLT                     ;BHIS BRANCH FAILED
 1038  002152  000240                          SCOPE
 1039
 1040  002154  103401                          BLO     .+4             ;BLO SHOULD NOT BRANCH
 1041  002156  000401                          BR      .+4
 1042  002160  000000                          HLT                     ;BLO BRANCH FAILED
 1043  002162  000240                          SCOPE
 1044
 1045
 1046  002164  101001                          BHI     .+4             ;BHI SHOULD BRANCH
 1047  002166  000000                          HLT                     ;BHI BRANCH FAILED
 1048  002170  000240                          SCOPE
 1049
 1050  002172  101401                          BLOS    .+4             ;BLOS SHOULD NOT BRANCH
 1051  002174  000401                          BR      .+4
 1052  002176  000000                          HLT                     ;BLOS BRANCH FAILED
 1053  002200  000240                          SCOPE
 1054
 1055  002202  000257                          CCC
 1056  002204  000261                          SEC
```

```
1057
1058  002206  001001                  BNE     .+4             ;BNE SHOULD BRANCH
1059  002210  000000                  HLT                     ;BNE BRANCH FAILED
1060  002212  000240                  SCOPE
1061
1062  002214  001401                  BEQ     .+4             ;BEQ SHOULD NOT BRANCH
1063  002216  000401                  BR      .+4
1064  002220  000000                  HLT                     ;BEQ BRANCH FAILED
1065  002222  000240                  SCOPE
1066
1067
1068  002224  002001                  BGE     .+4             ;BGE SHOULD BRANCH
1069  002226  000000                  HLT                     ;BGE BRANCH FAILED
1070  002230  000240                  SCOPE
1071
1072  002232  002401                  BLT     .+4             ;BLT SHOULD NOT BRANCH
1073  002234  000401                  BR      .+4
1074  002236  000000                  HLT                     ;BLT BRANCH FAILED
1075  002240  000240                  SCOPE
1076
1077
1078  002242  003001                  BGT     .+4             ;BGT SHOULD BRANCH
1079  002244  000000                  HLT                     ;BGT BRANCH FAILED
1080  002246  000240                  SCOPE
1081
1082  002250  003401                  BLE     .+4             ;BLE SHOULD NOT BRANCH
1083  002252  000401                  BR      .+4
1084  002254  000000                  HLT                     ;BLE BRANCH FAILED
1085  002256  000240                  SCOPE
1086
1087
1088  002260  103401                  BLO     .+4             ;BLO SHOULD BRANCH
1089  002262  000000                  HLT                     ;BLO BRANCH FAILED
1090  002264  000240                  SCOPE
1091
1092  002266  103001                  BHIS    .+4             ;BHIS SHOULD NOT BRANCH
1093  002270  000401                  BR      .+4
1094  002272  000000                  HLT                     ;BHIS BRANCH FAILED
1095  002274  000240                  SCOPE
1096
1097
1098  002276  101401                  BLOS    .+4             ;BLOS SHOULD BRANCH
1099  002300  000000                  HLT                     ;BLOS BRANCH FAILED
1100  002302  000240                  SCOPE
1101
1102  002304  101001                  BHI     .+4             ;BHI SHOULD NOT BRANCH
1103  002306  000401                  BR      .+4
1104  002310  000000                  HLT                     ;BHI BRANCH FAILED
1105  002312  000240                  SCOPE
1106
1107  002314  000257                  CCC
1108  002316  000262                  SEV                     ;2
1109
1110  002320  001001                  BNE     .+4             ;BNE SHOULD BRANCH
1111  002322  000000                  HLT                     ;BNE BRANCH FAILED
1112  002324  000240                  SCOPE
```

```
1113
1114  002326  001401                    BEQ     .+4             ;BEQ SHOULD NOT BRANCH
1115  002330  000401                    BR      .+4
1116  002332  000000                    HLT                     ;BEQ BRANCH FAILED
1117  002334  000240                    SCOPE
1118
1119
1120  002336  002401                    BLT     .+4             ;BLT SHOULD BRANCH
1121  002340  000000                    HLT                     ;BLT BRANCH FAILED
1122  002342  000240                    SCOPE
1123
1124  002344  002001                    BGE     .+4             ;BGE SHOULD NOT BRANCH
1125  002346  000401                    BR      .+4
1126  002350  000000                    HLT                     ;BGE BRANCH FAILED
1127  002352  000240                    SCOPE
1128
1129
1130  002354  003401                    BLE     .+4             ;BLE SHOULD BRANCH
1131  002356  000000                    HLT                     ;BLE BRANCH FAILED
1132  002360  000240                    SCOPE
1133
1134  002362  003001                    BGT     .+4             ;BGT SHOULD NOT BRANCH
1135  002364  000401                    BR      .+4
1136  002366  000000                    HLT                     ;BGT BRANCH FAILED
1137  002370  000240                    SCOPE
1138
1139
1140  002372  103001                    BHIS    .+4             ;BHIS SHOULD BRANCH
1141  002374  000000                    HLT                     ;BHIS BRANCH FAILED
1142  002376  000240                    SCOPE
1143
1144  002400  103401                    BLO     .+4             ;BLO SHOULD NOT BRANCH
1145  002402  000401                    BR      .+4
1146  002404  000000                    HLT                     ;BLO BRANCH FAILED
1147  002406  000240                    SCOPE
1148
1149
1150  002410  101001                    BHI     . 4             ;BHI SHOULD BRANCH
1151  002412  000000                    HLT                     ;BHI BRANCH FAILED
1152  002414  000240                    SCOPE
1153
1154  002416  101401                    BLOS    .+4             ;BLOS SHOULD NOT BRANCH
1155  002420  000401                    BR      .+4
1156  002422  000000                    HLT                     ;BLOS BRANCH FAILED
1157  002424  000240                    SCOPE
1158
1159  002426  000257                    CCC
1160  002430  000263                    +SEV!SEC                ;3
1161
1162  002432  001001                    BNE     .+4             ;BNE SHOULD BRANCH
1163  002434  000000                    HLT                     ;BNE BRANCH FAILED
1164  002436  000240                    SCOPE
1165
1166  002440  001401                    BEQ     .+4             ;BEQ SHOULD NOT BRANCH
1167  002442  000401                    BR      .+4
1168  002444  000000                    HLT                     ;BEQ BRANCH FAILED
```

```
1169  002446  000240                          SCOPE
1170
1171
1172  002450  002401                          BLT     .+4             ;BLT SHOULD BRANCH
1173  002452  000000                          HLT                     ;BLT BRANCH FAILED
1174  002454  000240                          SCOPE
1175
1176  002456  002001                          BGE     .+4             ;BGE SHOULD NOT BRANCH
1177  002460  000401                          BR      .+4
1178  002462  000000                          HLT                     ;BGE BRANCH FAILED
1179  002464  000240                          SCOPE
1180
1181
1182  002466  003401                          BLE     .+4             ;BLE SHOULD BRANCH
1183  002470  000000                          HLT                     ;BLE BRANCH FAILED
1184  002472  000240                          SCOPE
1185
1186  002474  003001                          BGT     .+4             ;BGT SHOULD NOT BRANCH
1187  002476  000401                          BR      .+4
1188  002500  000000                          HLT                     ;BGT BRANCH FAILED
1189  002502  000240                          SCOPE
1190
1191
1192  002504  103401                          BLO     .+4             ;BLO SHOULD BRANCH
1193  002506  000000                          HLT                     ;BLO BRANCH FAILED
1194  002510  000240                          SCOPE
1195
1196  002512  103001                          BHIS    .+4             ;BHIS SHOULD NOT BRANCH
1197  002514  000401                          BR      .+4
1198  002516  000000                          HLT                     ;BHIS BRANCH FAILED
1199  002520  000240                          SCOPE
1200
1201
1202  002522  101401                          BLOS    .+4             ;BLOS SHOULD BRANCH
1203  002524  000000                          HLT                     ;BLOS BRANCH FAILED
1204  002526  000240                          SCOPE
1205
1206  002530  101001                          BHI     .+4             ;BHI SHOULD NOT BRANCH
1207  002532  000401                          BR      .+4
1208  002534  000000                          HLT                     ;BHI BRANCH FAILED
1209  002536  000240                          SCOPE
1210
1211  002540  000257                          CCC
1212  002542  000264                          SEZ                     ;4
1213
1214  002544  001401                          BEQ     .+4             ;BEQ SHOULD BRANCH
1215  002546  000000                          HLT                     ;BEQ BRANCH FAILED
1216  002550  000240                          SCOPE
1217
1218  002552  001001                          BNE     .+4             ;BNE SHOULD NOT BRANCH
1219  002554  000401                          BR      .+4
1220  002556  000000                          HLT                     ;BNE BRANCH FAILED
1221  002560  000240                          SCOPE
1222
1223
1224  002562  002001                          BGE     .+4             ;BGE SHOULD BRANCH
```

```
1225  002564  000000                  HLT                     ;BGE BRANCH FAILED
1226  002566  000240                  SCOPE
1227
1228  002570  002401                  BLT     .+4             ;BLT SHOULD NOT BRANCH
1229  002572  000401                  BR      .+4
1230  002574  000000                  HLT                     ;BLT BRANCH FAILED
1231  002576  000240                  SCOPE
1232
1233
1234  002600  003401                  BLE     .+4             ;BLE SHOULD BRANCH
1235  002602  000000                  HLT                     ;BLE BRANCH FAILED
1236  002604  000240                  SCOPE
1237
1238  002606  003001                  BGT     .+4             ;BGT SHOULD NOT BRANCH
1239  002610  000401                  BR      .+4
1240  002612  000000                  HLT                     ;BGT BRANCH FAILED
1241  002614  000240                  SCOPE
1242
1243
1244  002616  103001                  BHIS    .+4             ;BHIS SHOULD BRANCH
1245  002620  000000                  HLT                     ;BHIS BRANCH FAILED
1246  002622  000240                  SCOPE
1247
1248  002624  103401                  BLO     .+4             ;BLO SHOULD NOT BRANCH
1249  002626  000401                  BR      .+4
1250  002630  000000                  HLT                     ;BLO BRANCH FAILED
1251  002632  000240                  SCOPE
1252
1253
1254  002634  101401                  BLOS    .+4             ;BLOS SHOULD BRANCH
1255  002636  000000                  HLT                     ;BLOS BRANCH FAILED
1256  002640  000240                  SCOPE
1257
1258  002642  101001                  BHI     .+4             ;BHI SHOULD NOT BRANCH
1259  002644  000401                  BR      .+4
1260  002646  000000                  HLT                     ;BHI BRANCH FAILED
1261  002650  000240                  SCOPE
1262
1263  002652  000257                  CCC
1264  002654  000265                  +SEC!SEZ                ;5
1265
1266  002656  001401                  BEQ     .+4             ;BEQ SHOULD BRANCH
1267  002660  000000                  HLT                     ;BEQ BRANCH FAILED
1268  002662  000240                  SCOPE
1269
1270  002664  001001                  BNE     .+4             ;BNE SHOULD NOT BRANCH
1271  002666  000401                  BR      .+4
1272  002670  000000                  HLT                     ;BNE BRANCH FAILED
1273  002672  000240                  SCOPE
1274
1275
1276  002674  002001                  BGE     .+4             ;BGE SHOULD BRANCH
1277  002676  000000                  HLT                     ;BGE BRANCH FAILED
1278  002700  000240                  SCOPE
1279
1280  002702  002401                  BLT     .+4             ;BLT SHOULD NOT BRANCH
```

```
1281  002704  000401                        BR      .+4
1282  002706  000000                        HLT                     ;BLT BRANCH FAILED
1283  002710  000240                        SCOPE
1284
1285
1286  002712  003401                        BLE     .+4             ;BLE SHOULD BRANCH
1287  002714  000000                        HLT                     ;BLE BRANCH FAILED
1288  002716  000240                        SCOPE
1289
1290  002720  003001                        BGT     .+4             ;BGT SHOULD NOT BRANCH
1291  002722  000401                        BR      .+4
1292  002724  000000                        HLT                     ;BGT BRANCH FAILED
1293  002726  000240                        SCOPE
1294
1295
1296  002730  103401                        BLO     .+4             ;BLO SHOULD BRANCH
1297  002732  000000                        HLT                     ;BLO BRANCH FAILED
1298  002734  000240                        SCOPE
1299
1300  002736  103001                        BHIS    .+4             .   'S SHOULD NOT BRANCH
1301  002740  000401                        BR      .+4
1302  002742  000000                        HLT                     ;BHIS BRANCH FAILED
1303  002744  000240                        SCOPE
1304
1305
1306  002746  101401                        BLOS    .+4             ;BLOS SHOULD BRANCH
1307  002750  000000                        HLT                     ;BLOS BRANCH FAILED
1308  002752  000240                        SCOPE
1309
1310  002754  101001                        BHI     .+4             ;BHI SHOULD NOT BRANCH
1311  002756  000401                        BR      .+4
1312  002760  000000                        HLT                     ;BHI BRANCH FAILED
1313  002762  000240                        SCOPE
1314
1315  002764  000257                        CCC
1316  002766  000266                        +SEZ!SEV                ;6
1317
1318  002770  001401                        BEQ     .+4             ;BEQ SHOULD BRANCH
1319  002772  000000                        HLT                     ;BEQ BRANCH FAILED
1320  002774  000240                        SCOPE
1321
1322  002776  001001                        BNE     .+4             ;BNE SHOULD NOT BRANCH
1323  003000  000401                        BR      .+4
1324  003002  000000                        HLT                     ;BNE BRANCH FAILED
1325  003004  000240                        SCOPE
1326
1327
1328  003006  002401                        BLT     .+4             ;BLT SHOULD BRANCH
1329  003010  000000                        HLT                     ;BLT BRANCH FAILED
1330  003012  000240                        SCOPE
1331
1332  003014  002001                        BGE     .+4             ;BGE SHOULD NOT BRANCH
1333  003016  000401                        BR      .+4
1334  003020  000000                        HLT                     ;BGE BRANCH FAILED
1335  003022  000240                        SCOPE
1336
```

```
1337
1338  003024  003401                    BLE     .+4             ;BLE SHOULD BRANCH
1339  003026  000000                    HLT                     ;BLE BRANCH FAILED
1340  003030  000240                    SCOPE
1341
1342  003032  003001                    BGT     .+4             ;BGT SHOULD NOT BRANCH
1343  003034  000401                    BR      .+4
1344  003036  000000                    HLT                     ;BGT BRANCH FAILED
1345  003040  000240                    SCOPE
1346
1347
1348  003042  103001                    BHIS    .+4             ;BHIS SHOULD BRANCH
1349  003044  000000                    HLT                     ;BHIS BRANCH FAILED
1350  003046  000240                    SCOPE
1351
1352  003050  103401                    BLO     .+4             ;BLO SHOULD NOT BRANCH
1353  003052  000401                    BR      .+4
1354  003054  000000                    HLT                     ;BLO BRANCH FAILED
1355  003056  000240                    SCOPE
1356
1357
1358  003060  101401                    BLOS    .+4             ;BLOS SHOULD BRANCH
1359  003062  000000                    HLT                     ;BLOS BRANCH FAILED
1360  003064  000240                    SCOPE
1361
1362  003066  101001                    BHI     .+4             ;BHI SHOULD NOT BRANCH
1363  003070  000401                    BR      .+4
1364  003072  000000                    HLT                     ;BHI BRANCH FAILED
1365  003074  000240                    SCOPE
1366
1367  003076  000257                    CCC
1368  003100  000267                    +SEZ!SEV!SEC            ;7
1369
1370  003102  001401                    BEQ     .+4             ;BEQ SHOULD BRANCH
1371  003104  000000                    HLT                     ;BEQ BRANCH FAILED
1372  003106  000240                    SCOPE
1373
1374  003110  001001                    BNE     .+4             ;BNE SHOULD NOT BRANCH
1375  003112  000401                    BR      .+4
1376  003114  000000                    HLT                     ;BNE BRANCH FAILED
1377  003116  000240                    SCOPE
1378
1379
1380  003120  002401                    BLT     .+4             ;BLT SHOULD BRANCH
1381  003122  000000                    HLT                     ;BLT BRANCH FAILED
1382  003124  000240                    SCOPE
1383
1384  003126  002001                    BGE     .+4             ;BGE SHOULD NOT BRANCH
1385  003130  000401                    BR      .+4
1386  003132  000000                    HLT                     ;BGE BRANCH FAILED
1387  003134  000240                    SCOPE
1388
1389
1390  003136  003401                    BLE     .+4             ;BLE SHOULD BRANCH
1391  003140  000000                    HLT                     ;BLE BRANCH FAILED
1392  003142  000240                    SCOPE
```

```
1393
1394  003144  003001                    BGT     .+4             ;BGT SHOULD NOT BRANCH
1395  003146  000401                    BR      .+4
1396  003150  000000                    HLT                     ;BGT BRANCH FAILED
1397  003152  000240                    SCOPE
1398
1399
1400  003154  103401                    BLO     .+4             ;BLO SHOULD BRANCH
1401  003156  000000                    HLT                     ;BLO BRANCH FAILED
1402  003160  000240                    SCOPE
1403
1404  003162  103001                    BHIS    .+4             ;BHIS SHOULD NOT BRANCH
1405  003164  000401                    BR      .+4
1406  003166  000000                    HLT                     ;BHIS BRANCH FAILED
1407  003170  000240                    SCOPE
1408
1409
1410  003172  101401                    BLOS    .+4             ;BLOS SHOULD BRANCH
1411  003174  000000                    HLT                     ;BLOS BRANCH FAILED
1412  003176  000240                    SCOPE
1413
1414  003200  101001                    BHI     .+4             ;BHI SHOULD NOT BRANCH
1415  003202  000401                    BR      .+4
1416  003204  000000                    HLT                     ;BHI BRANCH FAILED
1417  003206  000240                    SCOPE
1418
1419  003210  000257                    CCC
1420  003212  000270                    SEN                     ;10
1421
1422  003214  001001                    BNE     .+4             ;BNE SHOULD BRANCH
1423  003216  000000                    HLT                     ;BNE BRANCH FAILED
1424  003220  000240                    SCOPE
1425
1426  003222  001401                    BEQ     .+4             ;BEQ SHOULD NOT BRANCH
1427  003224  000401                    BR      .+4
1428  003226  000000                    HLT                     ;BEQ BRANCH FAILED
1429  003230  000240                    SCOPE
1430
1431
1432  003232  002401                    BLT     .+4             ;BLT SHOULD BRANCH
1433  003234  000000                    HLT                     ;BLT BRANCH FAILED
1434  003236  000240                    SCOPE
1435
1436  003240  002001                    BGE     .+4             ;BGE SHOULD NOT BRANCH
1437  003242  000401                    BR      .+4
1438  003244  000000                    HLT                     ;BGE BRANCH FAILED
1439  003246  000240                    SCOPE
1440
1441
1442  003250  003401                    BLE     .+4             ;BLE SHOULD BRANCH
1443  003252  000000                    HLT                     ;BLE BRANCH FAILED
1444  003254  000240                    SCOPE
1445
1446  003256  003001                    BGT     .+4             ;BGT SHOULD NOT BRANCH
1447  003260  000401                    BR      .+4
1448  003262  000000                    HLT                     ;BGT BRANCH FAILED
```

```
1449  003264  000240                          SCOPE
1450
1451
1452  003266  103001                          BHIS    .+4             ;BHIS SHOULD BRANCH
1453  003270  000000                          HLT                     ;BHIS BRANCH FAILED
1454  003272  000240                          SCOPE
1455
1456  003274  103401                          BLO     .+4             ;BLO SHOULD NOT BRANCH
1457  003276  000401                          BR      .+4
1458  003300  000000                          HLT                     ;BLO BRANCH FAILED
1459  003302  000240                          SCOPE
1460
1461
1462  003304  101001                          BHI     .+4             ;BHI SHOULD BRANCH
1463  003306  000000                          HLT                     ;BHI BRANCH FAILED
1464  003310  000240                          SCOPE
1465
1466  003312  101401                          BLOS    .+4             ;BLOS SHOULD NOT BRANCH
1467  003314  000401                          BR      .+4
1468  003316  000000                          HLT                     ;BLOS BRANCH FAILED
1469  003320  000240                          SCOPE
1470
1471  003322  000257                          CCC
1472  003324  000271                          +SEN!SEC                ;11
1473
1474  003326  001001                          BNE     .+4             ;BNE SHOULD BRANCH
1475  003330  000000                          HLT                     ;BNE BRANCH FAILED
1476  003332  000240                          SCOPE
1477
1478  003334  001401                          BEQ     .+4             ;BEQ SHOULD NOT BRANCH
1479  003336  000401                          BR      .+4
1480  003340  000000                          HLT                     ;BEQ BRANCH FAILED
1481  003342  000240                          SCOPE
1482
1483
1484  003344  002401                          BLT     .+4             ;BLT SHOULD BRANCH
1485  003346  000000                          HLT                     ;BLT BRANCH FAILED
1486  003350  000240                          SCOPE
1487
1488  003352  002001                          BGE     .+4             ;BGE SHOULD NOT BRANCH
1489  003354  000401                          BR      .+4
1490  003356  000000                          HLT                     ;BGE BRANCH FAILED
1491  003360  000240                          SCOPE
1492
1493
1494  003362  003401                          BLE     .+4             ;BLE SHOULD BRANCH
1495  003364  000000                          HLT                     ;BLE BRANCH FAILED
1496  003366  000240                          SCOPE
1497
1498  003370  003001                          BGT     .+4             ;BGT SHOULD NOT BRANCH
1499  003372  000401                          BR      .+4
1500  003374  000000                          HLT                     ;BGT BRANCH FAILED
1501  003376  000240                          SCOPE
1502
1503
1504  003400  103401                          BLO     .+4             ;BLO SHOULD BRANCH
```

```
1505  003402  000000                  HLT                     ;BLO BRANCH FAILED
1506  003404  000240                  SCOPE
1507
1508  003406  103001                  BHIS    .+4             ;BHIS SHOULD NOT BRANCH
1509  003410  000401                  BR      .+4
1510  003412  000000                  HLT                     ;BHIS BRANCH FAILED
1511  003414  000240                  SCOPE
1512
1513
1514  003416  101401                  BLOS    .+4             ;BLOS SHOULD BRANCH
1515  003420  000000                  HLT                     ;BLOS BRANCH FAILED
1516  003422  000240                  SCOPE
1517
1518  003424  101001                  BHI     .+4             ;BHI SHOULD NOT BRANCH
1519  003426  000401                  BR      .+4
1520  003430  000000                  HLT                     ;BHI BRANCH FAILED
1521  003432  000240                  SCOPE
1522
1523  003434  000257                  CCC
1524  003436  000272                  +SEN!SEV                ;12
1525
1526  003440  001001                  BNE     .+4             ;BNE SHOULD BRANCH
1527  003442  000000                  HLT                     ;BNE BRANCH FAILED
1528  003444  000240                  SCOPE
1529
1530  003446  001401                  BEQ     .+4             ;BEQ SHOULD NOT BRANCH
1531  003450  000401                  BR      .+4
1532  003452  000000                  HLT                     ;BEQ BRANCH FAILED
1533  003454  000240                  SCOPE
1534
1535
1536  003456  002001                  BGE     .+4             ;BGE SHOULD BRANCH
1537  003460  000000                  HLT                     ;BGE BRANCH FAILED
1538  003462  000240                  SCOPE
1539
1540  003464  002401                  BLT     .+4             ;BLT SHOULD NOT BRANCH
1541  003466  000401                  BR      .+4
1542  003470  000000                  HLT                     ;BLT BRANCH FAILED
1543  003472  000240                  SCOPE
1544
1545
1546  003474  003001                  BGT     .+4             ;BGT SHOULD BRANCH
1547  003476  000000                  HLT                     ;BGT BRANCH FAILED
1548  003500  000240                  SCOPE
1549
1550  003502  003401                  BLE     .+4             ;BLE SHOULD NOT BRANCH
1551  003504  000401                  BR      .+4
1552  003506  000000                  HLT                     ;BLE BRANCH FAILED
1553  003510  000240                  SCOPE
1554
1555
1556  003512  103001                  BHIS    .+4             ;BHIS SHOULD BRANCH
1557  003514  000000                  HLT                     ;BHIS BRANCH FAILED
1558  003516  000240                  SCOPE
1559
1560  003520  103401                  BLO     .+4             ;BLO SHOULD NOT BRANCH
```

```
 1561  003522  000401                        BR      .+4
 1562  003524  000000                        HLT                     ;BLO BRANCH FAILED
 1563  003526  000240                        SCOPE
 1564
 1565
 1566  003530  101001                        BHI     .+4             ;BHI SHOULD BRANCH
 1567  003532  000000                        HLT                     ;BHI BRANCH FAILED
 1568  003534  000240                        SCOPE
 1569
 1570  003536  101401                        BLOS    .+4             ;BLOS SHOULD NOT BRANCH
 1571  003540  000401                        BR      .+4
 1572  003542  000000                        HLT                     ;BLOS BRANCH FAILED
 1573  003544  000240                        SCOPE
 1574
 1575  003546  000257                        CCC
 1576  003550  000273                        +SEN!SEV!SEC            ;13
 1577
 1578  003552  001001                        BNE     .+4             ;BNE SHOULD BRANCH
 1579  003554  000000                        HLT                     ;BNE BRANCH FAILED
 1580  003556  000240                        SCOPE
 1581
 1582  003560  001401                        BEQ     .+4             ;BEQ SHOULD NOT BRANCH
 1583  003562  000401                        BR      .+4
 1584  003564  000000                        HLT                     ;BEQ BRANCH FAILED
 1585  003566  000240                        SCOPE
 1586
 1587
 1588  003570  002001                        BGE     .+4             ;BGE SHOULD BRANCH
 1589  003572  000000                        HLT                     ;BGE BRANCH FAILED
 1590  003574  000240                        SCOPE
 1591
 1592  003576  002401                        BLT     .+4             ;BLT SHOULD NOT BRANCH
 1593  003600  000401                        BR      .+4
 1594  003602  000000                        HLT                     ;BLT BRANCH FAILED
 1595  003604  000240                        SCOPE
 1596
 1597
 1598  003606  003001                        BGT     .+4             ;BGT SHOULD BRANCH
 1599  003610  000000                        HLT                     ;BGT BRANCH FAILED
 1600  003612  000240                        SCOPE
 1601
 1602  003614  003401                        BLE     .+4             ;BLE SHOULD NOT BRANCH
 1603  003616  000401                        BR      .+4
 1604  003620  000000                        HLT                     ;BLE BRANCH FAILED
 1605  003622  000240                        SCOPE
 1606
 1607
 1608  003624  103401                        BLO     .+4             ;BLO SHOULD BRANCH
 1609  003626  000000                        HLT                     ;BLO BRANCH FAILED
 1610  003630  000240                        SCOPE
 1611
 1612  003632  103001                        BHIS    .+4             ;BHIS SHOULD NOT BRANCH
 1613  003634  000401                        BR      .+4
 1614  003636  000000                        HLT                     ;BHIS BRANCH FAILED
 1615  003640  000240                        SCOPE
 1616
```

```
1617
1618  003642  101401                    BLOS    .+4             ;BLOS SHOULD BRANCH
1619  003644  000000                    HLT                     ;BLOS BRANCH FAILED
1620  003646  000240                    SCOPE
1621
1622  003650  101001                    BHI     .+4             ;BHI SHOULD NOT BRANCH
1623  003652  000401                    BR      .+4
1624  003654  000000                    HLT                     ;BHI BRANCH FAILED
1625  003656  000240                    SCOPE
1626
1627  003660  000257                    CCC
1628  003662  000274                    +SEN!SEZ                ;14
1629
1630  003664  001401                    BEQ     .+4             ;BEQ SHOULD BRANCH
1631  003666  000000                    HLT                     ;BEQ BRANCH FAILED
1632  003670  000240                    SCOPE
1633
1634  003672  001001                    BNE     .+4             ;BNE SHOULD NOT BRANCH
1635  003674  000401                    BR      .+4
1636  003676  000000                    HLT                     ;BNE BRANCH FAILED
1637  003700  000240                    SCOPE
1638
1639
1640  003702  002401                    BLT     .+4             ;BLT SHOULD BRANCH
1641  003704  000000                    HLT                     ;BLT BRANCH FAILED
1642  003706  000240                    SCOPE
1643
1644  003710  002001                    BGE     .+4             ;BGE SHOULD NOT BRANCH
1645  003712  000401                    BR      .+4
1646  003714  000000                    HLT                     ;BGE BRANCH FAILED
1647  003716  000240                    SCOPE
1648
1649
1650  003720  003401                    BLE     .+4             ;BLE SHOULD BRANCH
1651  003722  000000                    HLT                     ;BLE BRANCH FAILED
1652  003724  000240                    SCOPE
1653
1654  003726  003001                    BGT     .+4             ;BGT SHOULD NOT BRANCH
1655  003730  000401                    BR      .+4
1656  003732  000000                    HLT                     ;BGT BRANCH FAILED
1657  003734  000240                    SCOPE
1658
1659
1660  003736  103001                    BHIS    .+4             ;BHIS SHOULD BRANCH
1661  003740  000000                    HLT                     ;BHIS BRANCH FAILED
1662  003742  000240                    SCOPE
1663
1664  003744  103401                    BLO     .+4             ;BLO SHOULD NOT BRANCH
1665  003746  000401                    BR      .+4
1666  003750  000000                    HLT                     ;BLO BRANCH FAILED
1667  003752  000240                    SCOPE
1668
1669
1670  003754  101401                    BLOS    .+4             ;BLOS SHOULD BRANCH
1671  003756  000000                    HLT                     ;BLOS BRANCH FAILED
1672  003760  000240                    SCOPE
```

```
1673
1674  003762  101001                    BHI     .+4             ;BHI SHOULD NOT BRANCH
1675  003764  000401                    BR      .+4
1676  003766  000000                    HLT                     ;BHI BRANCH FAILED
1677  003770  000240                    SCOPE
1678
1679  003772  000257                    CCC
1680  003774  000275                    +SEN!SEZ!SEC            ;15
1681
1682  003776  001401                    BEQ     .+4             ;BEQ SHOULD BRANCH
1683  004000  000000                    HLT                     ;BEQ BRANCH FAILED
1684  004002  000240                    SCOPE
1685
1686  004004  001001                    BNE     .+4             ;BNE SHOULD NOT BRANCH
1687  004006  000401                    BR      .+4
1688  004010  000000                    HLT                     ;BNE BRANCH FAILED
1689  004012  000240                    SCOPE
1690
1691
1692  004014  002401                    BLT     .+4             ;BLT SHOULD BRANCH
1693  004016  000000                    HLT                     ;BLT BRANCH FAILED
1694  004020  000240                    SCOPE
1695
1696  004022  002001                    BGE     .+4             ;BGE SHOULD NOT BRANCH
1697  004024  000401                    BR      .+4
1698  004026  000000                    HLT                     ;BGE BRANCH FAILED
1699  004030  000240                    SCOPE
1700
1701
1702  004032  003401                    BLE     .+4             ;BLE SHOULD BRANCH
1703  004034  000000                    HLT                     ;BLE BRANCH FAILED
1704  004036  000240                    SCOPE
1705
1706  004040  003001                    BGT     .+4             ;BGT SHOULD NOT BRANCH
1707  004042  000401                    BR      .+4
1708  004044  000000                    HLT                     ;BGT BRANCH FAILED
1709  004046  000240                    SCOPE
1710
1711
1712  004050  103401                    BLO     .+4             ;BLO SHOULD BRANCH
1713  004052  000000                    HLT                     ;BLO BRANCH FAILED
1714  004054  000240                    SCOPE
1715
1716  004056  103001                    BHIS    .+4             ;BHIS SHOULD NOT BRANCH
1717  004060  000401                    BR      .+4
1718  004062  000000                    HLT                     ;BHIS BRANCH FAILED
1719  004064  000240                    SCOPE
1720
1721
1722  004066  101401                    BLOS    .+4             ;BLOS SHOULD BRANCH
1723  004070  000000                    HLT                     ;BLOS BRANCH FAILED
1724  004072  000240                    SCOPE
1725
1726  004074  101001                    BHI     .+4             ;BHI SHOULD NOT BRANCH
1727  004076  000401                    BR      .+4
1728  004100  000000                    HLT                     ;BHI BRANCH FAILED
```

```
1729  004102  000240                        SCOPE
1730
1731  004104  000257                        CCC
1732  004106  000276                        +SEN!SEZ!SEV            ;16
1733
1734  004110  001401                        BEQ     .+4             ;BEQ SHOULD BRANCH
1735  004112  000000                        HLT                     ;BEQ BRANCH FAILED
1736  004114  000240                        SCOPE
1737
1738  004116  001001                        BNE     .+4             ;BNE SHOULD NOT BRANCH
1739  004120  000401                        BR      .+4
1740  004122  000000                        HLT                     ;BNE BRANCH FAILED
1741  004124  000240                        SCOPE
1742
1743
1744  004126  002001                        BGE     .+4             ;BGE SHOULD BRANCH
1745  004130  000000                        HLT                     ;BGE BRANCH FAILED
1746  004132  000240                        SCOPE
1747
1748  004134  002401                        BLT     .+4             ;BLT SHOULD NOT BRANCH
1749  004136  000401                        BR      .+4
1750  004140  000000                        HLT                     ;BLT BRANCH FAILED
1751  004142  000240                        SCOPE
1752
1753
1754  004144  003401                        BLE     .+4             ;BLE SHOULD BRANCH
1755  004146  000000                        HLT                     ;BLE BRANCH FAILED
1756  004150  000240                        SCOPE
1757
1758  004152  003001                        BGT     .+4             ;BGT SHOULD NOT BRANCH
1759  004154  000401                        BR      .+4
1760  004156  000000                        HLT                     ;BGT BRANCH FAILED
1761  004160  000240                        SCOPE
1762
1763
1764  004162  103001                        BHIS    .+4             ;BHIS SHOULD BRANCH
1765  004164  000000                        HLT                     ;BHIS BRANCH FAILED
1766  004166  000240                        SCOPE
1767
1768  004170  103401                        BLO     .+4             ;BLO SHOULD NOT BRANCH
1769  004172  000401                        BR      .+4
1770  004174  000000                        HLT                     ;BLO BRANCH FAILED
1771  004176  000240                        SCOPE
1772
1773
1774  004200  101401                        BLOS    .+4             ;BLOS SHOULD BRANCH
1775  004202  000000                        HLT                     ;BLOS BRANCH FAILED
1776  004204  000240                        SCOPE
1777
1778  004206  101001                        BHI     .+4             ;BHI SHOULD NOT BRANCH
1779  004210  000401                        BR      .+4
1780  004212  000000                        HLT                     ;BHI BRANCH FAILED
1781  004214  000240                        SCOPE
1782
1783  004216  000277                        SCC                     ;17
1784
```

```
 1795  004220  001401                    BEQ     .+4             ;BEQ SHOULD BRANCH
 1796  004222  000000                    HLT                     ;BEQ BRANCH FAILED
 1797  004224  000240                    SCOPE
 1798
 1799  004226  001001                    BNE     .+4             ;BNE SHOULD NOT BRANCH
 1800  004230  000401                    BR      .+4
 1801  004232  000000                    HLT                     ;BNE BRANCH FAILED
 1802  004234  000240                    SCOPE
 1803
 1804
 1805  004236  002001                    BGE     .+4             ;BGE SHOULD BRANCH
 1806  004240  000000                    HLT                     ;BGE BRANCH FAILED
 1807  004242  000240                    SCOPE
 1808
 1809  004244  002401                    BLT     .+4             ;BLT SHOULD NOT BRANCH
 1810  004246  000401                    BR      .+4
 1811  004250  000000                    HLT                     ;BLT BRANCH FAILED
 1812  004252  000240                    SCOPE
 1813
 1814
 1815  004254  003401                    BLE     .+4             ;BLE SHOULD BRANCH
 1816  004256  000000                    HLT                     ;BLE BRANCH FAILED
 1817  004260  000240                    SCOPE
 1818
 1819  004262  003001                    BGT     .+4             ;BGT SHOULD NOT BRANCH
 1820  004264  000401                    BR      .+4
 1821  004266  000000                    HLT                     ;BGT BRANCH FAILED
 1822  004270  000240                    SCOPE
 1823
 1824
 1825  004272  103401                    BLO     .+4             ;BLO SHOULD BRANCH
 1826  004274  000000                    HLT                     ;BLO BRANCH FAILED
 1827  004276  000240                    SCOPE
 1828
 1829  004300  103001                    BHIS    .+4             ;BHIS SHOULD NOT BRANCH
 1830  004302  000401                    BR      .+4
 1831  004304  000000                    HLT                     ;BHIS BRANCH FAILED
 1832  004306  000240                    SCOPE
 1833
 1834
 1835  004310  101401                    BLOS    .+4             ;BLOS SHOULD BRANCH
 1836  004312  000000                    HLT                     ;BLOS BRANCH FAILED
 1837  004314  000240                    SCOPE
 1838
 1839  004316  101001                    BHI     .+4             ;BHI SHOULD NOT BRANCH
 1840  004320  000401                    BR      .+4
 1841  004322  000000                    HLT                     ;BHI BRANCH FAILED
 1842  004324  000240                    SCOPE
 1843
 1844  004326  005267  000022            INC     LOOP
 1845  004332  001006                    BNE     FIN
 1846  004334  012737  000207  177566    MOV     #207,@#177566   ;RING BELL
 1847  004342  105737  177564            TSTB    @#177564
 1848  004346  100375                    BPL     .-4
 1849  004350  000167  173624    FIN:    JMP     200
 1850  004354  000000            LOOP:   0
```

```
1841            000001                          .END
```

D08A.P11 CROSS REFERENCE TABLE -- USER SYMBOLS

```
FIN     004350          1835    1839#
HLT   = 000000           320#     331     335     340     344     349     353     358     362     369     374     380     384
                         389      393     398     402     411     415     419     424     430     434      39     443     450
                         455      460     465     471     475     480     484     493     497     502     506     510     515
                         521      525     533     538     544     548     552     557     563     567     576     580     584
                         599      594     599     605     609     616     621     626     631     636     641     647     651
                         660      664     669     673     678     682     686     691     700     705     711     715     720
                         724      728     733     743     747     751     756     762     766     770     775     784     789
                         794      799     805     809     813     818     828     832     837     841     845     850     855
                         860      868     873     879     883     887     892     897     902     912     916     920     925
                         930      935     940     945     953     958     963     968     973     978     984     989    1007
                        1012     1017    1022    1027    1032    1037    1042    1047    1052    1059    1064    1069    1074
                        1079     1084    1089    1094    1099    1104    1111    1116    1121    1126    1131    1136    1141
                        1146     1151    1156    1163    1168    1173    1178    1183    1188    1193    1198    1203    1208
                        1215     1220    1225    1230    1235    1240    1245    1250    1255    1260    1267    1272    1277
                        1282     1287    1292    1297    1302    1307    1312    1319    1324    1329    1334    1339    1344
                        1349     1354    1359    1364    1371    1376    1381    1386    1391    1396    1401    1406    1411
                        1416     1423    1428    1433    1438    1443    1448    1453    1458    1463    1468    1475    1480
                        1485     1490    1495    1500    1505    1510    1515    1520    1527    1532    1537    1542    1547
                        1552     1557    1562    1567    1572    1579    1584    1589    1594    1599    1604    1609    1614
                        1619     1624    1631    1636    1641    1646    1651    1656    1661    1666    1671    1676    1683
                        1688     1693    1698    1703    1708    1713    1718    1723    1728    1735    1740    1745    1750
                        1755     1760    1765    1770    1775    1780    1786    1791    1796    1801    1806    1811    1816
                        1821     1826    1831
LOOP    004354          1834*    1840#
NEXT    002052           981#
NOP   = 000240           319#     321
SCOPE = 000240           321#     332     336     341     345     350     354     359     363     370     375     381     385
                         390      394     399     403     412     416     420     425     431     435     440     444     451
                         456      461     466     472     476     481     485     494     498     503     507     511     516
                         522      526     534     539     545     549     553     558     564     568     577     581     585
                         590      595     600     606     610     617     622     627     632     637     642     648     652
                         661      665     670     674     679     683     687     692     701     706     712     716     721
                         725      729     734     744     748     752     757     763     767     771     776     785     790
                         795      800     806     810     814     819     829     833     838     842     846     851     856
                         861      869     874     880     884     888     893     899     903     913     917     921     926
                         931      936     941     946     954     959     964     969     974     979     985     990    1003
                        1008     1013    1018    1023    1028    1033    1038    1043    1048    1053    1060    1065    1070
                        1075     1080    1085    1090    1095    1100    1105    1112    1117    1122    1127    1132    1137
                        1142     1147    1152    1157    1164    1169    1174    1179    1184    1189    1194    1199    1204
                        1209     1216    1221    1226    1231    1236    1241    1246    1251    1256    1261    1268    1273
                        1278     1283    1288    1293    1298    1303    1308    1313    1320    1325    1330    1335    1340
                        1345     1350    1355    1360    1365    1372    1377    1382    1387    1392    1397    1402    1407
                        1412     1417    1424    1429    1434    1439    1444    1449    1454    1459    1464    1469    1476
                        1481     1486    1491    1496    1501    1506    1511    1516    1521    1528    1533    1538    1543
                        1548     1553    1558    1563    1568    1573    1580    1585    1590    1595    1600    1605    1610
                        1615     1620    1625    1632    1637    1642    1647    1652    1657    1662    1667    1672    1677
                        1684     1689    1694    1699    1704    1709    1714    1719    1724    1729    1736    1741    1746
                        1751     1756    1761    1766    1771    1776    1781    1787    1792    1797    1802    1807    1812
                        1817     1822    1827    1832
SP    = 177570           322#
.     = 004356           254#     255     257     259     261     263     265     267     269     271     273     275     277
                         279      281     283     285     287     289     291     293     295     297     299     301     303
                         305      307     309     311     313     315     317     323#    329     330     334     338     339
                         343      347     348     352     356     357     361     368     372     373     378     379     383
                         387      388     392     396     397     401     409     410     414     418     422     423     428
```

```
 429  433  437  438  442  449  453  454  459  463  464  469  470
 474  478  479  483  491  492  496  500  501  505  509  513  514
 519  520  524  532  536  537  542  543  547  551  555  556  561
 562  566  574  575  579  583  587  588  593  597  598  603  604
 606  615  619  620  625  629  630  635  639  640  645  646  650
 658  659  663  667  668  672  676  677  681  695  689  690  699
 703  704  709  710  714  718  719  723  727  731  732  741  742
 746  750  754  755  760  761  765  769  773  774  783  787  788
 793  797  798  803  804  808  812  816  817  826  827  831  835
 836  840  844  848  849  854  858  859  867  871  872  877  878
 882  886  890  891  896  900  904  910  911  915  919  923  924
 929  933  934  939  943  944  952  956  957  962  966  967  972
 976  977  983  987  988 1006 1010 1011 1016 1020 1021 1026 1030
1031 1036 1040 1041 1046 1050 1051 1058 1062 1063 1068 1072 1073
1078 1082 1083 1088 1092 1093 1098 1102 1103 1110 1114 1115 1120
1124 1125 1130 1134 1135 1140 1144 1145 1150 1154 1155 1162 1166
1167 1172 1176 1177 1182 1186 1187 1192 1196 1197 1202 1206 1207
1214 1218 1219 1224 1228 1229 1234 1238 1239 1244 1248 1249 1254
1258 1259 1266 1270 1271 1276 1280 1281 1286 1290 1291 1296 1300
1301 1306 1310 1311 1318 1322 1323 1328 1332 1333 1338 1342 1343
1348 1352 1353 1358 1362 1363 1370 1374 1375 1380 1384 1385 1390
1394 1395 1400 1404 1405 1410 1414 1415 1422 1426 1427 1432 1436
1437 1442 1446 1447 1452 1456 1457 1462 1466 1467 1474 1478 1479
1484 1488 1489 1494 1498 1499 1504 1508 1509 1514 1518 1519 1526
1530 1531 1536 1540 1541 1546 1550 1551 1556 1560 1561 1566 1570
1571 1578 1582 1583 1588 1592 1593 1598 1602 1603 1608 1612 1613
1618 1622 1623 1630 1634 1635 1640 1644 1645 1650 1654 1655 1660
1664 1665 1670 1674 1675 1682 1686 1687 1692 1696 1697 1702 1706
1707 1712 1716 1717 1722 1726 1727 1734 1738 1739 1744 1748 1749
1754 1758 1759 1764 1768 1769 1774 1778 1779 1785 1789 1790 1795
1799 1800 1805 1809 1810 1815 1819 1820 1825 1829 1830 1838
```

F04


```
ARTBR     992#  1005  1015  1025  1035  1045  1057  1067  1077  1087  1097  1109  1119  1129  1139
          1149  1161  1171  1181  1191  1201  1213  1223  1233  1243  1253  1265  1275  1285  1295
          1305  1317  1327  1337  1347  1357  1369  1379  1389  1399  1409  1421  1431  1441  1451
          1461  1473  1483  1493  1503  1513  1525  1535  1545  1555  1565  1577  1587  1597  1607
          1617  1629  1639  1649  1659  1669  1681  1691  1701  1711  1721  1733  1743  1753  1763
          1773  1784  1794  1804  1814  1824
BRA       993#  1005  1525
BRB       994#  1057  1577
BRC       995#  1109  1421
BRD       996#  1161  1473
BRE       997#  1213
BRF       997#  1265
BRG       998#  1317  1629
BRH       999#  1369  1681
BRI      1000#  1733
BRJ      1001#  1784
CCLR      325#   328   408   490   573   657   740   825   909
COMMEN      1#
CSET      325#   367   448   531   614   698   782   866   951
ENDCOM      1#
ESCAPE      1#
GETPRI      1#
GETSWR      1#
MULT        1#
NCLR      325#   355   395   436   477   518   560   602   644
NEWTST      1#
NSET      325#   684   726   768   811   853   895   938   981
POP         1#
PUSH        1#
REPORT      1#
SETPRI      1#
SETUP       1#
SKIP        1#
SLASH       1#
STARS       1#
SWRSU       1#
TYPBIN      1#
TYPDEC      1#
TYPNAM      1#
TYPNUM      1#
TYPOCS      1#
TYPOCT      1#
TYPTXT      1#
VCLR      325#   337   377   499   541   666   708   834   876
VSET      325#   417   458   582   624   749   792   918   961
ZCLR      325#   346   386   427   468   675   717   759   802
ZSET      325#   508   550   592   634   843   885   928   971
$$ESCA      1#
$$NEWT      1#
$$SKIP      1#
.EQUAT      1#
.HEADE      1#
.KT11       1#
.SETUP      1#
.SWRHI      1#
.$ACT1      1#
```

```
.$APTB      1#
.$APTH      1#
.$APTY      1#
.$ASTA      1#
.$CATC      1#
.$CMTA      1#
.$D82D      1#
.$D820      1#
.$DIV       1#
.$EOP       1#
.$ERRO      1#
.$ERRT      1#
.$MULT      1#
.$POWE      1#
.$RAND      1#
.$RODE      1#
.$RDOC      1#
.$READ      1#
.$R2AZ      1#
.$SAVE      1#
.$SB2D      1#
.$SB20      1#
.$SCOP      1#
.$SIZE      1#
.$SUPR      1#
.$TRAP      1#
.$TYPB      1#
.$TYPD      1#
.$TYPE      1#
.$TYPO      1#
.$+OCA      1#
.1170       1#
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DOBA.P11 CROSS REFERENCE TABLE -- PERMANENT SYMBOLS

BCC 334 372 414 453 496 536 579 619 663 703 746 787 831 871 915
956
BCS 329 368 409 449 491 532 574 615 658 699 741 783 826 867 910
952
BEQ 347 387 428 469 509 551 593 635 676 718 760 803 844 886 929
972 1010 1062 1114 1166 1214 1266 1318 1370 1426 1478 1530 1582 1630 1682
1734 1785
BGE 1016 1068 1124 1176 1224 1276 1332 1384 1436 1488 1536 1598 1644 1696 1744
1795
BGT 1026 1078 1134 1186 1238 1290 1342 1394 1446 1498 1546 1598 1654 1706 1758
1809
BHI 1046 1102 1150 1206 1258 1310 1362 1414 1462 1518 1566 1622 1674 1726 1778
1829
BHIS 1036 1092 1140 1196 1244 1300 1348 1404 1452 1508 1556 1612 1660 1716 1764
1819
BLE 1030 1082 1130 1182 1234 1286 1338 1390 1442 1494 1550 1602 1650 1702 1754
1805
BLO 1040 1088 1144 1192 1248 1296 1352 1400 1456 1504 1560 1608 1664 1712 1768
1815
BLOS 1050 1098 1154 1202 1254 1306 1358 1410 1466 1514 1570 1618 1670 1722 1774
1825
BLT 1020 1072 1120 1172 1228 1280 1328 1380 1432 1484 1540 1592 1640 1692 1748
1799
BMI 356 396 437 478 519 561 603 645 685 727 769 812 854 896 939
983
BNE 352 392 433 474 513 555 597 639 681 723 765 808 848 890 933
976 1006 1058 1110 1162 1218 1270 1322 1374 1422 1474 1526 1578 1634 1686
1738 1789 1835
BPL 361 401 442 483 524 566 608 650 689 731 773 816 858 900 943
987 1838
BR 330 339 348 357 373 379 388 397 410 423 429 438 454 464 470
479 492 501 514 520 537 543 556 562 575 588 598 604 620 630
640 646 659 668 677 690 704 710 719 732 742 755 761 774 788
798 804 817 827 836 849 859 872 878 891 901 911 924 934 944
957 967 977 988 1011 1021 1031 1041 1051 1063 1073 1083 1093 1103 1115
1125 1135 1145 1155 1167 1177 1187 1197 1207 1219 1229 1239 1249 1259 1271
1281 1291 1301 1311 1323 1333 1343 1353 1363 1375 1385 1395 1405 1415 1427
1437 1447 1457 1467 1479 1489 1499 1509 1519 1531 1541 1551 1561 1571 1583
1593 1603 1613 1623 1635 1645 1655 1665 1675 1687 1697 1707 1717 1727 1739
1749 1759 1769 1779 1790 1800 1810 1820 1830
BVC 343 383 422 463 505 547 587 629 672 714 754 797 840 882 923
966
BVS 338 378 418 459 500 542 583 625 667 709 750 793 835 877 919
962
CCC 327 488 529 571 612 655 696 738 1004 1055 1107 1159 1211 1263 1315
1367 1419 1471 1523 1575 1627 1679 1731
CLC 406 824 908
CLV 824 865
CLZ 781
HALT 256 258 260 262 264 266 268 270 272 274 276 278 280 282 284
286 288 290 292 294 296 298 300 302 304 306 308 310 312 314
316 318
INC 1834
JMP 1839
MOV 1836
SCC 780 823 864 907 950 1783

```
SEC       366     447     530     613     697    1056    1160    1264    1368    1472    1576    1680
SEN       656     697     739    1420    1472    1524    1576    1628    1680    1732
SEV       407     447     572     613     739    1108    1160    1316    1368    1524    1576    1732
SEZ       489     530     572     613    1212    1264    1316    1368    1628    1680    1732
TSTB     1837
.ENABL      1
.END     1841
.LIST       1
.MACR     325     992     993     994     995     996     997     998     999    1000    1001
.MACRO      1
.NLIST      1
.REM        1
.REPT     255


 ERRORS DETECTED:  0
 DEFAULT GLOBALS GENERATED:  0

 *,DOBA.SEQ/SOL/CRF/PAGNUM/NL:TOC=SYSMAC.CC,DOBA.P11
 RUN-TIME:  23 27 1 SECONDS
 RUN-TIME RATIO: 172/53=3.2
 CORE USED:  33K  (65 PAGES)
```

Spooler runtime 5 Seconds, 25 KCS, 122 disk reads, 4 disk writes, 47 pages